

Interannual variation in water quality variables in Puget Sound as revealed by time-series analysis

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Keywords: Puget Sound, hydrography, time-series analyses, oceanography

The Marine Monitoring Unit of the Washington State Department of Ecology began occupying an axis of nine stations along the main stem of Puget Sound in 1998, as part of the Puget Sound Ambient Monitoring Program (PSAMP). We take monthly vertical CTD profiles of water column data which include measurements of temperature, salinity, dissolved oxygen, light transmissivity, fluorometry and pH. We also take discrete samples for dissolved oxygen, chlorophyll a and nutrients. We have produced monthly sections from this hydrographic data set, and have calculated a seasonally-weighted mean, such that monthly anomalies can be presented. We use these to observe the interannual variation in key water quality variables. Combined effects of climate, watershed and ocean forcings can then be evaluated. Specifically, the effect of low salinity during droughts, and high temperatures associated with El Nino events are highlighted.